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10/799,331	03/12/2004	Stephan Levine	ASX-066	6232

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EXAMINER
AKANBI, ISIAKA O

ART UNIT	PAPER NUMBER
2886	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/799,331	LEVINE ET AL.	
	Examiner	Art Unit	
	ISIAKA O. AKANBI	2886	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 3-34 and 36-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-34 and 36-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Amendment

The amendment filed on 16 January 2008 has been entered into this application. Claims 2 and 35 are cancelled. Claim 38 has been added.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3-8, 10-15, 17-31 and 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weckstrom (6,791,689 B1) in view of Hallstadius (2003/0025909 A1), and further in view of Wong (5,222,389).

As to claims 1, 17, 26 and 37, Weckstrom teaches of an apparatus/method for measuring/producing ozonated water having a desired ozone concentration (i.e. an attribute of ozone) comprising

a vessel (2) to contain an ozonated fluid (a substance, as liquid or gas, that is capable of flowing that changes its shape at a steady rate when acted upon by a force tending to change its shape, see dictionary.com)(col. 7, line 50-53)(figs. 2-7),

with regard to the following phrase "for delivery of to a semiconductor process tool" it has been held that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claimed limitation.

a light source (1) configured to direct a first band (8a) of light that is detected by (9) and a second band (8b) of light that is detected by (1) along a substantially shared path through the ozonated fluid in the vessel (2),

wherein ozone in the ozonated fluid has a greater absorption associated with the first band of light than with the second band of light (col. 3, line 53-59) and a photosensor (9) that senses the first band of light and the second band of light passing along the substantially shared path (figs. 1 and 2) and suggested measuring ozonated

fluid with different wavelength(i.e. red and blue spectrum)(col. 8, line 38-50) and adjusting at least one parameter (i.e. temperature) of the device until the measured ozone concentration substantially matches the desired ozone concentration (col. 5, line 10-16).

Weckstrom is silent regarding to modifying a measured attribute of the ozone in the ozonated fluid determined from the sensed first band of light in response to the sensed second band of light to improve the accuracy of the measured attribute.

However, Hallstadius shows that it is known to measure ozone/ozonated fluid with different wavelength and modifying a measured ozone in the ozonated fluid determined from the sensed first band of light in response to the sensed second band of light to improve the accuracy of the measured attribute (figs. 1-2) (see abstract) (page 2, pars. 0015-0020)(pars. 0001 and 0078)(claim 1). It would have been at least obvious to one having ordinary skill in the art at the time of invention was made to provide an apparatus/method for measuring ozonated fluid with different wavelengths to achieve the predictable result of measuring ozone concentration with accuracy.

Further, Weckstrom when modified by Hallstadius is silent regarding to the first and second bands of light diffusely scattered by the plurality of reflection sites.

Weckstrom shows a second band of light (8b) that is diffusely (i.e. spread or reflected or scatter widely or thinly) scattered by the plurality of reflection sites, such as (the reflecting length of the tube inner wall) (col. 4, line 54-57).

Wong from the same field of endeavor teaches plurality bands of light diffusely scattered by the plurality of reflection sites, such as (inside the highly reflective wall of the elongated sample chamber) (figs. 4 and 5)(col. 3, lines 42-46)(col. 7, lines 9-25).

Therefore, it would have been at least obvious to one having ordinary skill in the art at the time of invention to modify Weckstrom when modified by Hallstadius by providing plurality bands (i.e. first and second) of light that is diffusely scattered by the plurality of reflection sites, such as (inside the highly reflective wall of the elongated sample chamber) for the purpose of serving as a light pipe to conduct radiation introduced at one end of the elongated sample chamber by a source to detectors with accuracy.

As to claim 3, Weckstrom also discloses the vessel (an object used as a container) comprising a delivery pipeline for the ozonated fluid to permit in situ measurement of the ozone. (fig. 4)(col. 7, line 5-20)(col. 7, line 44-53)

As to claims 4, 5 and 6, Weckstrom and when modified by further discloses wherein the spectrums are different (i.e. first band of light is associated with a yellow-red frequency and a first width, and the second band of light is associated with a blue frequency and a second width) by using/detecting wavelength region seen by detector (9) and reference detector (11) so that the signal from reference detector (11) is not sensitive (i.e. a yellow-red light-emitting diode to provide the first band of light, and a blue light-emitting diode to provide the second band of light), or is less sensitive (figs. 3 and 4)(col. 3, line 52-59)(col. 6, line 20-23).

As to claims 7-8, 29-30, 36 and 38, Weckstrom and Hallstadius when modified by Wong also discloses the limitations wherein the substantially shared path is defined in part by the plurality of reflection sites such as (inside the highly reflective wall of the elongated sample chamber)(4) to increase a length of the path through the ozonated fluid in the vessel (2), thereby increasing a measurement sensitivity for the attribute of the ozone in the ozonated fluid (col. 6, line 15-18) and a material that defines an inner surface (4) of the vessel for diffusely (i.e. spread or reflected or scatter widely or thinly) scattering the first (8a) and second (8b) bands of light at the plurality of reflection sites (figs. 2 and 3)(col. 4, line 56-57).

As to claims 9, 32 and 33, Weckstrom when modified by Hallstadius and Wong, disclose coating an exterior/interior surface (Wong, col. 5, line 28) of the vessel for scattering the first and second bands of light at the plurality of reflection sites (figs. 4 and 5).

As to claims 10 and 11, Weckstrom also discloses the attribute of the ozone in the ozonated fluid has an absorption band that overlaps (i.e. extend over and cover part of the band) the first band of light (col. 3, line 53-55) and wherein the light source comprising a light-emitting diode (1) (figs. 2 and 3)(col. 6, line 12-43).

As to claim 12, Weckstrom and Hallstadius when modified by Wong fail to disclose the type of materials use for the vessel as being selected from group (i.e. quartz and a polymer).

However, since the combination Weckstrom and Hallstadius when modified by Wong does not limit the type of material use for the vessel, it would have been obvious

to one of ordinary skill in the art at the time of invention was made to use a smooth, easy-to-clean material, preferably quartz glass.

Therefore it would have been at least obvious to one having ordinary skill in the art at the time of invention to use a smooth, easy-to-clean material, preferably quartz glass. Additionally, It would have been at least obvious to one having ordinary skill in the art at the time of invention was made to provide a vessel comprising a material that is selected from the group of (i.e. quartz and a polymer) to achieve the predictable results of providing transparent or translucent for receiving flowing fluids/gas.

As to claims 13-14, Weckstrom further discloses a photosensor (9) that senses the first band of light (8a) and the second band of light (8b) after the first band of light and the second band of light pass along a portion of the substantially or the substantially shared path (figs. 2,4 and 5)(col. 5, line 53-col. 6, line 3).

As to claim 15, Weckstrom also discloses at least one of a temperature sensor (7), for measuring a temperature of the ozonated fluid in the vessel, and a pressure sensor, for measuring a pressure of the ozonated fluid in the vessel (fig. 2)(col. 5, line 16-18).

As to claim 18, Weckstrom discloses sensing the first band (8a) of light and the second band (8b) of light after they pass along a substantially shared path through the ozonated fluid (figs. 2, 3, 4 and 5)(col. 5, line 27-32)(col. 7, line 50-54).

Weckstrom is silent regarding wherein modifying comprising correcting the measured attribute for an intensity loss of the sensed first band of light associated with at least one factor other than absorption by the attribute of ozone in the ozonated fluid.

Hallstadius teaches of modifying measured ozone in the ozonated fluid (figs. 1 and 2)(pars. 0001, 0078, 0083)(claim 1). It would have been at least obvious to one having ordinary skill in the art at the time of invention was made to provide a modification that comprises correcting the measured attribute for an intensity loss of the sensed first band of light associated with at least one factor other than absorption by the attribute of ozone in the ozonated fluid for the purpose of measuring ozone concentration with accuracy.

Further, Weckstrom when modified by Hallstadius is silent regarding to the first and second bands of light diffusely scattered by the plurality of reflection sites.

Weckstrom shows a second band of light (8b) that is diffusely (i.e. spread or reflected or scatter widely or thinly) scattered by the plurality of reflection sites, such as (the reflecting length of the tube inner wall) (col. 4, line 54-57).

Wong from the same field of endeavor teaches plurality bands of light diffusely scattered by the plurality of reflection sites, such as (inside the highly reflective wall of the elongated sample chamber) (figs. 4 and 5)(col. 3, lines 42-46)(col. 7, lines 9-25).

Therefore it would have been at least obvious to one having ordinary skill in the art at the time of invention to modify Weckstrom when modified by Hallstadius by providing plurality bands (i.e. first and second) of light that is diffusely scattered by the plurality of reflection sites, such as (inside the highly reflective wall of the elongated sample chamber) for the purpose of serving as a light pipe to conduct radiation introduced at one end of the elongated sample chamber by a source to detectors with accuracy.

As to claim 19, Weckstrom also discloses at least one factor comprising at least a reflectivity of a reflection site of the substantially shared path by using the detectors (figs. 2-7)(col. 6, line 12-20)(9 and 11)(col. 8, line 8-17).

As to claim 20, Weckstrom and Hallstadius when modified by Wong, Weckstrom further discloses providing the substantially shared path in a vessel defined at least in part by the first and second bands of light being diffusely reflected at the plurality of reflection sites (2)(figs. 2-7).

As to claim 21, Weckstrom also discloses wherein the plurality of reflection sites (4) increase a length of the substantially shared path in the vessel (2)(figs. 2 and 3).

As to claims 22 and 35, Weckstrom further discloses a method comprising causing the ozonated water to flow through the vessel (2) from an ozonated water generator (23/30) to a (i.e. semiconductor) process tool (9/26/27) to permit in situ measurement of the ozone concentration (figs. 4-5).

As to claims 23-24, Weckstrom also discloses alternately directing the first band of light and the second band of light along the substantially shared path, wherein sensing comprising alternately sensing (8a) the first band of light and the second band of light (8b) and alternately directing no light (i.e. dark signal) along the substantially shared path (figs. 2-4) (col. 8, line 58-64)(col. 5, line 58-col. 6, line 1-3).

As to claims 25 and 31, Weckstrom further also discloses sensing (9/11) at least one of the first band of light (8a) and the second band of light (8b) along after the first and second bands of light have passed at most a portion of the substantially shared

path, and responsively maintaining an emitted intensity of at least one of the first band of light and the second band of light (figs. 2-4)(col. 3, line 52-59)(col. 2, line 3-7).

As to claims 27 and 28, Weckstrom discloses sensing the first band of light (8a) and the second band of light (8b) after they pass along a substantially shared path through the ozonated fluid and absorption of the first or second bands of light (figs. 4 and 5)(col. 7, line 50-54)(col. 9, line 21-30).

Weckstrom is silent regarding the attribute is ozone concentration.

Hallstadius teaches of attribute that is ozone concentration (figs. 1-2) (see abstract)(page 2, pars. 0015-0028). It would have been at least obvious to one having ordinary skill in the art at the time of invention was made to provide attribute that is ozone concentration by measuring/determining the concentration ozone in a sample.

Weckstrom when modified by Hallstadius is silent regarding to the first and second bands of light diffusely scattered by the plurality of reflection sites.

Weckstrom shows a second band of light (8b) that is diffusely (i.e. spread or reflected or scatter widely or thinly) scattered by the plurality of reflection sites, such as (the reflecting length of the tube inner wall) (col. 4, line 54-57).

Wong from the same field of endeavor teaches plurality bands of light diffusely scattered by the plurality of reflection sites, such as (inside the highly reflective wall of the elongated sample chamber) (figs. 4 and 5)(col. 3, lines 42-46)(col. 7, lines 9-25).

Therefore it would have been at least obvious to one having ordinary skill in the art at the

time of invention to modify Weckstrom when modified by Hallstadius by providing plurality bands (i.e. first and second) of light that is diffusely scattered by the plurality of reflection sites, such as (inside the highly reflective wall of the elongated sample chamber) for the purpose of serving as a light pipe to conduct radiation introduced at one end of the elongated sample chamber by a source to detectors with accuracy.

As to claim 34, Weckstrom also discloses first (8a) and second (8b) bands of light that are in the visible spectrum (i.e. from about 400-750 nm in wavelength)(col. 9, line 55-59)(col. 11, line 30-33).

Claims 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu (3,835,322) in view of Barringer (3,449,565).

As to claims 16, Komatsu teaches of an ozonated water generator (fig. 1) comprising:

a contactor for mixing water and ozone gas (fig. 1: 11); a pipeline (i.e. outlet of Joint 11 of fig. 1) in fluid communication with the contactor; with regard to the following phrase “for delivery of ozonated water to a semiconductor process tool” it has been held that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, and then it meets the claimed limitation.

Komatsu also discloses using a dual wavelength electric type analyzer for measure the absorption or no absorption spectrum of the sample mixture (i.e. gas and water)(col. 4, lines 9-11).

Komatsu is silent regarding the dual wavelength electric type analyzer for measurement the absorption spectrum of a sample mixture that comprising the pipeline including a plurality of reflection sites; a light source configured to direct a first band of light and a second band of light along a substantially shared path though the fluid in the pipeline, the first and second bands of light diffusely scattered at the plurality of reflection sites in the pipeline, wherein ozone in the ozonated water has a greater absorption associated with the first band of light than with the second band of light; and a photosensor that senses the first band of light and the second band of light after they pass along the substantially shared path for measuring an attribute of the ozone in the ozonated fluid.

However, using dual or multiple wavelengths (lamp source) type analyzer for measurement of absorption of a sample mixture (i.e. gaseous components and water (vapor)) that is comprising of the pipeline including a plurality of reflection sites; a light source configured to direct a first band of light and a second band of light along a substantially shared path though the fluid in the pipeline, the first and second bands of light diffusely scattered at the plurality of reflection sites in the pipeline, wherein ozone in the ozonated water has a greater absorption associated with the first band of light than with the second band of light; and a photosensor that senses the first band of light and the second band of light after they pass along the substantially shared path for measuring an attribute of the ozone in the ozonated fluid, is common and known in the art, as evidenced by Barringer (figs. 1 and 6)(col. 3, lines 21-59).

Therefore it would have been at least obvious to one having ordinary skill in the art at the time of invention was made to provide dual or multiple wavelengths (lamp source) type analyzer for measurement of absorption of a sample mixture (i.e. gaseous components and water (vapor)) that is comprising of the pipeline including a plurality of reflection sites; a light source configured to direct a first band of light and a second band of light along a substantially shared path though the fluid in the pipeline, the first and second bands of light diffusely scattered at the plurality of reflection sites in the pipeline, wherein ozone in the ozonated water has a greater absorption associated with the first band of light than with the second band of light; and a photosensor that senses the first band of light and the second band of light after they pass along the substantially shared path for measuring an attribute of the ozone in the ozonated fluid for purpose of measuring absorption of a sample mixture (i.e. water and ozone gas) with different wavelengths to achieve the predictable result of measuring ozone concentration with accuracy.

Response to Arguments

Applicant's arguments with respect to claims 1, 7-9, 14, 16-17, 20-22, 25-26, 29, 31, and 36-37 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isiaka Akanbi whose telephone number is (571) 272-8658. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur R. Chowdhury can be reached on (571) 272-2287. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isiaka Akanbi

April 23, 2008

/TARIFUR R CHOWDHURY/

Supervisory Patent Examiner, Art Unit 2886